May 2020

OfficeHours_IS5_20160225_Seg01.pdf

Setting: ITA's office. Quiet.
Participants: S1 (not visible), IS5 (long black hair)

0:00
xxx S1: hi
xxx IS5: ((laughing)) hi:
xxx S1: how are you doing today?
xxx IS5: good=
xxx S1: =good
xxx IS5: it's weird º ((incomprehensible))
xxx S1: so you are holding your office right now
xxx after this
xxx do you have anything else?
xxx or you can go home
xxx IS5: º I can go home
xxx S1: you can go home
xxx so
xxx from 2:30 to (.)
xxx IS5: 4:30
xxx S1: 4:30
xxx IS5: but I always be here
xxx S1: you're always here?=
xxx IS5: =yea
xxx S1: you don't go home?
xxx IS5: uh maybe 10 º o'clock
xxx IS5: ((laughing))
xxx S1: why do you
xxx what do you do:?
xxx IS5: homework º homework ((laughing))
xxx homework
xxx S1: ((laughing))
xxx how long does it take the do homework?
xxx IS5: whole day
xxx S1: whole day:?
xxx what kind of homework assignment do you have?
xxx IS5: uh this one
xxx S1: is it like [solving physics questions?
xxx IS5: [yea so
xxx like this is one (.) homework
xxx we have to write (.) like this
xxx ((IS5 shows a homework assignment))
xxx S1: what?!

xxx this is
xxx hold on
xxx let me [show this to camera
xxx IS5: ((laughing))
xxx [why
xxx why
xxx S1: this is [one
xxx IS5: [two two two
xxx S1: alright fine two
xxx IS5: homework
xxx S1: wo::w
xxx IS5: so it takes me the whole weekend to °solve these things
xxx S1: does this have to be handwritten?
xxx it's impossible to enter this
xxx into computer?=
xxx IS5: =err handwritten might be faster=
xxx S1: =better
xxx faster
xxx alright hm
xxx hm::
xxx I think (.3)
xxx I think (.3)
xxx my knowledge
xxx doesn't support me to understand this
xxx ((Both laughing))
xxx IS5: (but you') major
xxx I not support
xxx I not understand your homework
xxx S1: no my homework is social science so
xxx if you are human being you can understand
xxx ((laughing))
xxx wow this is amazing!
xxx IS5: ah?
xxx S1: it is.
xxx IS5: thank you
xxx S1: you should take all the compliments
xxx ha thank you
xxx ((S1 laughing. IS5 seems embarrassed))
xxx what is uh (.)
xxx because I only see: um:
xxx numbers
xxx what is the thing that you are [solving
xxx IS5: [I don't remember even
xxx what is the kind of problem
xxx IS5: ah ((incomprehensible))

xxx S1: just
xxx IS5: what I'm doing
xxx ((Scratches head. Thinking))
xxx in this one
xxx is just ((laughing))
xxx S1: so it's just like equation?
xxx and you are trying to
xxx IS5: like to quantize something
xxx S1: quanti?
xxx IS5: quantize
xxx S1: quantize?
xxx what is quantize
xxx IS5: like ok
xxx energy is not continuous
xxx it is ((incomprehensible))
xxx right?
xxx S1: yes
xxx IS5: you know such things
xxx S1: what kind of energy
xxx are we talking about?
xxx energy in general?
xxx IS5: yea.
xxx S1: like energy to me
xxx is a very (.) abstract concept
xxx IS5: uhh energy and
xxx [continuous atoms flow
xxx S1: [like heat?
xxx light?=
xxx IS5: =um yep
xxx light
xxx S1: ok
xxx IS5: ((stumbles over words)) but uh:::
xxx not the hydrogen
xxx S1: mhm
xxx IS5: yea
xxx so there is electron,
xxx and neutron,
xxx and the energy contained by them is continuous like
xxx it might make some uh light
xxx °make some ° ((incomprehensible))
xxx ° (some other things with energies)
xxx I still don't know
3:00
xxx what energy is clearly
xxx because there are

xxx ambiguous concepts.
xxx S1: ok
xxx IS5: homework yea
xxx S1: so that’s quantifying energy.
xxx IS5: uh
xxx (quantify some field)
Xxx field like
xxx S1: field?
xxx ((S1 checks for understanding - repeats word))
EXC IS5: yea ((scratching head))
EXC I don’t know how to explain the field
EXC but it’s just a concept
EXC you can create it as particle
EXC º or something
xxx S1: ok
xxx [alright
xxx IS5: [I don’t know how to explain it [clearly
xxx S1: [I will pretend I
xxx understood everything you just said
xxx ((laughing))
xxx um: let me ask you about
xxx oh I don’t know
xxx what kind of classes are you taking this semester?
xxx IS5: mmmm quantum mechanics=
xxx S1: =quantum mechanics ok
xxx IS5: ((incomprehensible)) mechanics an:d,
xxx also (quantum field theory)
xxx S1: o:h so that was quantum field theory
xxx so it’s a theor=
xxx IS5: yea
xxx S1: theoretical seminar
xxx IS5: no c-c-[course
xxx S1: [course
Xxx so in courses
xxx what do you have to do?
xxx you just go to lectures,
xxx and then do your homeworks,
xxx and then do you have to take exams?
xxx or write a paper?
xxx IS5: ((nodding head)) exams.
xxx S1: and that’s it
xxx and they are usually very difficult
xxx IS5: ((nodding head))
xxx (they take up too much time)
xxx S1: have you already had any quizzes?

xxx IS5: no.
xxx S1: no not yet
xxx ok
xxx IS5: (winter) so far is ok
xxx S1: life is not that easy
xxx IS5: life is so hard.
xxx S1: ((repeating and laughing)) life is so hard
xxx um ((incomprehensible))
xxx what is statistic mechanics?
xxx IS5: yea
xxx S1: what do you do in that class?
xxx IS5: uh
xxx I (.3)
xxx ((laughs))
xxx S1: also (take) lectures
xxx do [homework
xxx IS5: [yes and [exams
xxx S1: [exams
xxx so you don't have to write any-
xxx you don't have to write a paper
xxx or [any articles
xxx IS5: [no no no
xxx I don't have the ability °to do it I think=
xxx S1: =ok=
xxx IS5: =so far=
xxx S1: =alright
xxx so you are taking three courses.
xxx IS5: ((scrunches face)) u:h yea
xxx maybe four,
xxx because I didn't ((incomprehensible)) but I audit.
xxx general relativity
xxx S1: what?
xxx general activity?
xxx IS5: general relativity
xxx S1: o::h [Einstein
xxx IS5: [Einstein ((laughing))
xxx you know e e
xxx S1: I know the name
xxx I know he's a genius
xxx IS5: ((laughing)) yea he's a genius
xxx I'm not ((laughs))
xxx that's why it's so hard!=
xxx S1: =don't say that
xxx you are in the physics department
xxx you are above average

xxx IS5: ((laughs))
xxx S1: always take the compliment
xxx so do you like that class?
xxx general relativity?=
xxx IS5: =yes
xxx S1: what are you learning right now?
xxx IS5: ((incomprehensible)) so far it's some mathematical things
xxx (lots of) geometry
xxx S1: ok
xxx ((incomprehensible))
xxx curvature
xxx º lots of mathematical things
xxx S1: is that (.) the famous equation?
xxx E equals M C squared
xxx ((IS5 looks down and touches forehead))
xxx or that's a totally different concept
xxx IS5: ((stumbles)) E equals M C is not about º general relativity
xxx S1: ok
xxx what is that about
xxx IS5: it just means
xxx the mass is (.) is a kind of energy
xxx mass is energy
xxx S1: o::h yea that's
xxx E stands for energy
xxx the energy that I have no=
xxx IS5: =like uh
xxx cannot relate to
xxx IS5: but we use it
xxx yes we use it in general relativity.
6:00
xxx S1: ok
xxx alright
xxx sounds good
xxx IS5: yea
xxx S1: and quant
xxx quantum=
xxx IS5: =mechanics
xxx S1: what is that about?
EXC IS5: just
EXC ((scratches head))
EXC just u:h
EXC I don't know uh
EXC it's just like
EXC º quantize some particle

EXC maybe you can ask ((incomprehensible)) classmate
EXC ((laughing))
EXC ((incomprehensible))
EXC IS5: cause uh
EXC quantum
EXC is like
EXC uh (.2)
EXC there are some experim-
EXC ok so
EXC there are some experiment,
EXC and we find it obeys our
EXC knowledge=
xxx S1: =ok=
xxx IS5: =at the time
xxx so we have to (have some new) theory,
xxx ((gestures with hands)) ((incomprehensible))
xxx quantum mechanics
xxx quantum field theory=
xxx S1: =right
xxx so right now
xxx so far
xxx in in this class
xxx are you learning the history-
xxx IS5: -no
xxx S1: of this the [field?
xxx IS5: [we are-
xxx S2 -or=
xxx IS5: =we just learn
xxx this theory
xxx S1: this theory
xxx IS5: yea
xxx S1: how complicated is this theory?
xxx very complicated
xxx IS5: this theory,
xxx this theory is beautiful actually
xxx I think it’s much more funny (than) the quantum physics
xxx theory
xxx S1: why?
xxx IS5: because the quantum theory is too complicated
xxx (we have to do a lot of) calculations
xxx S1: but you said it’s beautiful
xxx how is it beautiful?
xxx IS5: it’s a good question.
xxx ((smiling)) I don’t know!
xxx ((both laughing))

xxx S1: just a kind of feel
Xxx yea
xxx S1: if I'm a undergraduate student
xxx IS5: mhm
xxx S1: and I'm like taking all kinds of different courses
xxx and then you happen to be my physics TA,
Xxx IS5: mhm
Xxx S1: and I come to you and I say
xxx I think I am interested in physics
xxx how would you attract me to your field
xxx or would you discourage me from studying physics
xxx IS5: I think
xxx S1: yes
Xxx IS5: everything's boring
xxx if you want to do it
xxx and have your career
xxx S1: everything will be boring if that's your career?
xxx IS5: yes
xxx because you have to spend lots of time
Xxx to deal with details
xxx S1: mhm
xxx which is not °beautiful and not funny and not interesting
xxx S1: but what about a sense of achievement after
xxx you [have complete
xxx IS5: [yes
xxx maybe that is what I mean-
xxx S1: a motivation
xxx IS5: but it is not major in your life
xxx S1: so are you saying that you
xxx started physics because of passion
xxx but then
xxx after
xxx IS5: after you go into it there must be some field you don't
Xxx °like
xxx but you must do it.
Xxx you have to do it.
xxx S1: what are those things?
xxx IS5: the calculations!
xxx you have to do all the calculations!
xxx S1: can't you use computer programs?
xxx to do your-
xxx IS5: no we don't have any uhhh
xxx like computer
xxx the computer may help to
9:00

xxx to solve the matrix to solve numbers but
xxx but we don’t have ((does hand gestures))
xxx S1: model or software or anything
xxx IS5: yes but
xxx but for fundamental theories we don’t use computer
xxx just pen,
xxx pen and paper
xxx S1: so that’s like the tradition?
xxx but when-
xxx IS5: because w-we there is no need to use computer
xxx because if you’re-
xxx S1: you have to understand the concept
xxx then you can let computer do it for you
xxx IS5: if you are doing research
xxx S1: right
xxx IS5: like to solve some model to be uh
xxx you might need to use computer
xxx but now just
xxx study the fundamental theories so
xxx S1: ok
xxx IS5: we don’t need to use computer
xxx S1: so
xxx you are
xxx eh
xxx doing theoretical physics
xxx is that right
xxx IS5: I am learning it.
xxx S1: you are leaning it
xxx IS5: but there are fundamental courses (no matter)
xxx S1: oh you have to take it anyway
Xxx IS5: yup
Xxx S1: even if you want to do experiments later
xxx IS5: yea. but. if you want to do experiments maybe
xxx you are not an expert for that
xxx °but you have to know something
xxx ((laughing))
xxx S1: yea
xxx what do you wanna do
xxx do you wanna-
xxx IS5: oh I think my IQ
xxx is not enough
xxx S1: don’t say!
xxx stop it!
xxx ((laughing))
xxx so experiments,

xxx experimental things is enough for me
xxx S1: ok so
xxx so according to you
xxx not enough IQ
xxx IS5: yea
xxx S1: according to you it’s easier to do experimental
xxx IS5: uh no it’s not that easier
xxx but I mean
xxx both of them have different difficulties
xxx S1: but for theory like-
xxx S1: it’s easier to get results if you are doing experiments
xxx is that right?
xxx IS5: what do you mean get results?
xxx S1: so if you want to publish something,
xxx IS5: if you want to publish experiments it will be easier
xxx but
xxx but like
xxx for theoretical things
xxx it’s easier to increase uh your credits if you are smart
xxx S1: o:h
xxx like Einstein
xxx IS5: yup
Xxx but. for experiments you need to cooperate with others
Xxx so it’s not easy to increase °your own
xxx S1: why can’t you do it on your own?
xxx IS5: because it’s impossible to
xxx to experiment on your own today.
xxx S1: well hm
xxx a:h
xxx can you give me an example of an experiment
xxx IS5: well for °>((incomprehensible)) experiment
xxx ((incomprehensible))<
xxx it might be good if you have group
xxx which consists of 10 people
xxx S1: wow!
xxx that’s a lot
xxx IS5: no no
xxx this is small group
xxx but for >((incomprehensible))
xxx ((incomprehensible))<
xxx for experiments
xxx for each paper
xxx there might be thousands of authors
xxx S1: thousands!
xxx IS5: because you have to build. a detector,

xxx accelerator,
xxx someone needs to (manage the data)
xxx someone need to repair the hardware things
xxx S1: so
xxx uh like
xxx from what I get
xxx um
xxx I have this impression that
xxx it is very [expensive to do experiments here
xxx IS5: [yep
xxx you need a whole lab
xxx IS5: yep=
xxx S1: =and equipment
xxx and you may need a lot of-
xxx IS5: its very expensive
12:00
xxx like millions.
xxx S1: so for graduate students
xxx you can only get involved in a lab to do experiments
xxx and then put your name
xxx IS5: yes
xxx S1: ok
xxx maybe nobody knows you
xxx if you didn't (.)-
xxx S1: have like
xxx great achievement
xxx or contribution to something
xxx IS5: yes
xxx S1: oh wow
Xxx hmm
xxx so do theory then
xxx IS5: yes
xxx ((laughing))
xxx I mean if you're smart and intelligent
xxx then theory is.
xxx but if you are not so
xxx you have no (way) °for you to increase your own credits
xxx >because you cannot publish paper<
xxx S1: can I ask you about your department like
xxx um
xxx senior students
xxx who are alumni,
xxx who graduated from this department
xxx °what are they doing right now
xxx IS5: I don't know

xxx S1: you don’t know
xxx IS5: bu:t I can show you
xxx S1: ask next time
xxx IS5: most of graduate students in physics department
xxx won’t
xxx (I mean they) cannot stay in academic
xxx S1: why is that?
xxx IS5: because there are no jobs.
xxx S1: so you mean the positions are off field
xxx IS5: yep.
xxx S1: and there are more-
xxx IS5: no funding
xxx no job
xxx S1: so what are the options after graduation
xxx do you go to industry?
xxx IS5: yea industry
xxx financial:
xxx computer-
xxx S1: financial?
xxx IS5: like. yea actually
xxx like
xxx in Wall Street
xxx those people who do all the
xxx most of them are physics and mathematics=
xxx S1: =why’s that?
xxx IS5: I don’t know
xxx S1: because you are doing calculations?
xxx IS5: maybe
xxx I don’t know
xxx because maybe they need to build model model
xxx S1: o:h ok
xxx IS5: >I don’t know but<
Xxx S1: so do you also learn
xxx um computation::
xxx comp
xxx um
xxx courses relate to computational physics
xxx IS5: no
xxx S1: no
xxx so if you want to (.)
xxx obtain the skill of
xxx how to build a model
EVC IS5: but for build a model
EVC like uh,
EVC it’s not about

EVC it’s not only about computation things like
EVC it’s uh
EVC the main
EVC I think the major problem-
xxx S1: [the design
xxx IS5: [is how to build it=
xxx S1: =yea
xxx ok
xxx IS5: maybe they think that mathematical
Xxx and physics physical students
xxx have
xxx can do it better
xxx [I don’t know
xxx S1: [I think so
xxx IS5: maybe
xxx S1: I think that way ((laughing))
xxx IS5: maybe
xxx but I think if you are smart
xxx >you can do everything<
xxx if you are not smart
xxx S1: that is true
Xxx IS5: so its-
Xxx S1: genius can do
xxx can
xxx can be great in all kinds of field
Xxx IS5: so there is no relation about
xxx what your major is
xxx S1: but you have been
xxx you have advantages
xxx if you have more background in something
xxx you have more study.
xxx or experience,
xxx or umm
xxx you know the field,
xxx much more than other uh.
xxx other people.
xxx IS5: yea but you
xxx mean
xxx you won’t
xxx you cannot stay in this field.
xxx S1: this is such a shame
xxx IS5: I know um
xxx S1: I went to high school here
xxx and um:
xxx one of my

xxx physics pro- uh teacher
xxx because it’s high school
xxx actually has a PhD degree
xxx IS5: yea ((laugh))
xxx it’s another (.) way
xxx yea um
xxx S1: so
xxx IS5: my senior students in my undergraduate,
xxx she graduated
xxx she got the PhD in ((incomprehensible))
xxx S1: wow
xxx IS5: and she is a high school teacher.
xxx yea
xxx S1: ((laugh))
xxx so it’s also very difficult to find [jobs in China
xxx IS5: [I think
xxx I don’t know if it is accurate but
xxx there is a data said only five percent (.)
xxx stay in academic.
xxx S1: five percent?!
xxx IS5: because the amount of job is limited.
xxx S1: five percent is a very:
xxx IS5: [I don’t -
xxx S1: [sad number:
xxx IS5: I don’t know if the data is accurate but.
xxx but uh like but
Xxx I’m sure more than half of
xxx S1: do you want to continue in academia
xxx IS5: I don’t know
xxx S1: you don’t know
Xxx IS5 I’m lost.
xxx I don’t know any
xxx S1: you’re in your first year
xxx and then you are lost
xxx IS5: yea
xxx I don’t know what I